02 20 04 22	CC	Apollo 8, Houston. You are riding the best one we can find around.
02 20 04 30	CDR	Say again.
02 20 04 32	CC	You are riding the best bird we can find. Over.
02 20 04 33	CDR	Thank you.
02 20 04 38	CDR	Roger. It's a good one.
02 20 11 45	LMP	The cryo's have been stirred, Houston.
02 20 11 49	CC	Roger, Bill.
02 20 12 08	CC	Apollo 8, Houston. We just saw an MC&W light.
02 20 12 16	LMP	We just tested the caution and warning.
02 20 12 18	CC	Roger.
02 20 12 22	LMP	That's keeping alert.
02 20 12 24	CC	Roger. Clint there is getting white.
02 20 15 59	CC	Apollo 8, Houston. We're 42 minutes from LOS, and we caught another caution and warning light.
02 20 16 09	CDR	It was the high-gain antenna going out of limits.
02 20 16 12	CC	Roger.
02 20 21 04	CC	Apollo 8, Houston. Voice quality on the DSE dump is very good. The DSE is yours. Over.
02 20 21 14	CDR	Mighty fine.
02 20 26 25	CC	Apollo 8, Houston. COMM check.
02 20 26 30	CMP	Read you loud and clear, Houston.
02 20 26 32	CC	Roger.
02 20 30 37	CDR	Houston, Apollo 8. Over.
02 20 30 40	CC	Apollo 8, Houston. Go.
02 20 30 45	CDR	Roger. We are ready to activate the primary water boiler.

02 20 30 49	CC	Roger. Copy.
02 20 30 53	CDR	We got a GO?
02 20 30 57	CC	Roger. GO.
02 20 31 01	CDR	Okay. Steam pressure going to AUTO; H_2 flow going to AUTO.
02 20 31 49	CC	Apollo 8, Houston. We are on low bit rate. We won't see your steam pressure; your RAD OUT is 33. Over.
02 20 32 01	CDR	Roger. We're below the boiling limit, and steam pressure is steady at 0.15.
02 20 32 09	CC	Roger.
02 20 33 21	CC	Apollo 8, this is Houston. We have got our lunar map up and ready to go.
02 20 33 29	CDR	Roger.
02 20 37 38	LMP	Houston, Apollo 8. Over.
02 20 37 40	CC	Apollo 8, Houston. Go.
02 20 37 45	LMP	Roger. We're showing a fuel pressure of 167, in AUX of 163. Wondering, do you think there's a possibility of us having a transient caution warning trip on fuel AUX pressure at the beginning of the burn that would correct itself nominally as we had a chance to pressurize? Over.
02 20 38 12	CC	Roger. Understand; will check. Stand by.
02 20 38 20	LMP	Roger.
02 20 38 43	CC	Apollo 8, Houston.
02 20 38 49	LMP	Go ahead.

02 20 38 51	CC	Apollo 8, this is Houston. We've been reading fuel 173, AUX 167, holding steady for a long period of time. We expect no caution and warning trip. Over.
02 20 39 12	LMP	Roger. Understand.
02 20 48 30	CC	Apollo 8, Houston. Nine minutes 30 seconds from LOS.
02 20 48 38	CMP	Roger. Understand.
02 20 49 00	CC	Apollo 8, Houston.
02 20 49 05	CMP	Go ahead.
02 20 49 08	CC	Roger. In about 10 seconds, we'll have you 19 minutes from ignition. Five, four, three, two, one -
02 20 49 18	CC	MARK.
02 20 53 06	CC	Apollo 8, Houston. Five minutes LOS, all systems GO. Over.
02 20 53 13	CDR	Thank you. Houston, Apollo 8.
02 20 53 17	CC	Roger, Frank. The custard is in the oven at 350. Over.
02 20 53 30	CDR	No comprendo.
02 20 53 38	LMP	Roger.
02 20 56 06	CC	Apollo 8, Houston. Two minutes until LOS.
02 20 56 12	CDR	Roger.
02 20 57 06	CC	Apollo 8, Houston. One minute to LOS. All systems GO.
02 20 57 12	CDR	Roger. Going to COMMAND RESET, tape recorder FORWARD low bit rate.

02 20 57 19	CC	Roger. Safe journey, guys.
02 20 57 24	LMP	Thanks a lot, troops.
02 20 57 26	CMP	We'll see you on the other side.
02 20 57 54	CC	Apollo 8, 10 seconds to go. You're GO all the way.
02 20 58 00	CDR	Roger.
02 21 10 XX		BEGIN LUNAR REV 1
02 21 32 02	CC	Apollo 8, Houston. Over.
02 21 32 35	CC	Apollo 8, Houston. Over.
02 21 32 50	CC	Apollo 8, Houston. Over.
02 21 33 08	CC	Apollo 8, Houston. Over.
02 21 33 21	CC	Apollo 8, Houston. Over.
02 21 33 44	CC	Apollo 8, Houston. Over.
02 21 33 52	CMP	Go ahead, Houston. This is Apollo 8. Burn complete. Our orbit 160.9 by 60.5; 169.1 by 60.5.
02 21 34 07	CC	Apollo 8, this is Houston. Roger. 169.1 by 60.5. Good to hear your voice.

END OF TAPE

APOLLO 8 AIR-TO-GROUND VOICE TRANSCRIPTION

(GOSS NET 1)

02 21 35 23	CC	Apollo 8, this is Houston. Verify your evaporator water control in AUTOMATIC. Over.
02 21 35 56	CC	Apollo 8, Houston. Over.
02 21 36 09	CC	Apollo 8, Houston. Over.
02 21 36 24	CC	Apollo 8, Apollo 8, this is Houston, Houston. Over.
02 21 36 32	CDR	Roger, Houston. We read you loud and clear. How do you read us?
02 21 36 35	CC	Apollo 8, this is Houston. Reading you loud and clear now. And verify your evaporator water control panel switch to the AUTO position. Over.
02 21 36 51	CDR	Roger. I am sure it is in AUTO.
02 21 36 54	CC	Roger.
02 21 37 00	CMP	Burn status report as follows: burn on time, burn time 4 minutes 6-1/2 seconds, VG_X minus 1.4, attitude is nominal, no trim, VG_Y was zero, VG_Z was plus 0.2, DELTA-V_C was minus 20.2, orbit 169.1 by 60.5.
02 21 37 45	CC	Apollo 8, Houston. Roger. The burn on time, burn time of 4 06.5, VG_X is minus 1.4.
02 21 38 19	CC	Apollo 8, Houston. Verify your EVAP water control on panel 382 is AUTO. Your EVAP OUT temperature is high. Over.
02 21 38 33	LMP	Roger. Standing by.
02 21 38 40	LMP	Houston, Apollo 8. Roger. Primary EVAP is AUTO, H_2 flow AUTO. Do you recommend activating the secondary water boiler?

02 21 38 51	CC	Roger. Copy. Stand by.
02 21 39 10	CC	Apollo 8, this is Houston. Reverify manual valve on panel 382, evaporator water control AUTOMATIC. Over.
02 21 39 22	LMP	Roger. Verified.
02 21 39 36	CC	Apollo 8, this is Houston. Recommend you activate your secondary water evaporator.
02 21 39 54	LMP	Secondary EVAP coming on line.
02 21 39 56	CC	Roger.
02 21 40 40	CC	Apollo 8, Houston. Turn off your DSE, and we will go to high bit rate. Over.
02 21 40 49	LMP	Roger.
02 21 40 52	CC	Apollo 8, this is Houston. And I will continue my readback of the burn status report. Copied VG_X zero, VG_Y zero, VG_Z 1.2, DELTA-V Charlie minus 20.2. Over.
02 21 41 15	LMP	Stand by; he's getting the chart out again.
02 21 41 21	CMP	DELTA-VG_Z was 0.2.
02 21 41 26	CC	Roger. Understand; 0.2 on VG_Z.
02 21 41 53	LMP	Houston, this is Apollo 8. We are on malfunction 1 of 6, going through step 1 to step 2. Over.
02 21 42 02	CC	Apollo 8, Houston. Roger. Copy.
02 21 42 08	LMP	Correction. That is to step 4.
02 21 42 10	CC	Roger. Copy; to step 4.
02 21 42 41	LMP	Now to step 13.

02 21 42 44	CC	Roger. Step 13.
02 21 43 14	LMP	Now to step 14.
02 21 43 18	CC	Houston. Roger.
02 21 43 25	LMP	Looks like the boiler dried out somewhere along the line.
02 21 43 28	CC	Roger, Bill.
02 21 44 01	CDR	Houston, this is Apollo 8. I would like to confirm that burn status report. VG_X was minus 1.4, VG_Y 0. VG_Z 0.2, minus 0.2 that is. DELTA-V_C was minus 20.2 --
02 21 44 26	CC	Apollo 8, --
02 21 44 27	CDR	-- apogee 169.1, perigee 60.5.
02 21 44 36	CC	Apollo 8, this is Houston. Roger. I will read back again. The burn was on time, 4 minutes and 6-1/2 seconds, VG_X minus 1.4, trim nominal, VG_Y zero, VG_Z minus 0.2, DELTA-V Charlie minus 20.2. Over.
02 21 45 05	CDR	That's Roger.
02 21 45 06	CC	Roger. And we copy your apogee and perigee.
02 21 45 24	LMP	Steam pressure is coming up.
02 21 45 27	CC	Roger, Bill.
02 21 46 37	LMP	Step 15.
02 21 46 39	CC	Roger. Concur.
02 21 46 41	LMP	Very good.
02 21 46 58	LMP	EVAP TEMP's coming down.
02 21 47 04	CC	Apollo 8, Houston. Roger. We concur.

02 21 47 20	LMP	Okay. Houston, keep a good eye on it.
02 21 47 23	CC	Roger. We're watching.
02 21 47 28	LMP	Okay. Nice job on the malfunction procedures.
02 21 47 32	CC	Roger, Bill. Thanks.
02 21 47 39	LMP	You, too.
02 21 49 02	LMP	Give us a call when you think we ought to stop the secondary boiler, Houston.
02 21 49 06	CC	Apollo 8, Houston. Wilco.
02 21 49 40	CMP	Houston, Apollo 8.
02 21 49 41	CC	Apollo 8, Houston. Go.
02 21 49 47	CMP	Roger. For information, we're passing over just to the side of the crater Langrenus at this time going into the Sea of Fertility.
02 21 49 57	CC	Apollo 8, Houston. Roger.
02 21 51 04	CC	Apollo 8, Houston. What does the ole moon look like from 60 miles? Over.
02 21 51 16	CMP	Okay, Houston. The moon is essentially gray, no color; looks like plaster of Paris or sort of a grayish deep sand. We can see quite a bit of detail. The Sea of Fertility doesn't stand out as well here as it does back on earth. There's not as much contrast between that and the surrounding craters. The craters are all rounded off. There's quite a few of them; some of them are newer. Many of them look like - especially the round ones - look like hits by

meteorites or projectiles of some sort. Langrenus is quite a huge crater; it's got a central cone to it. The walls of the crater are terraced, about six or seven different terraces on the way down.

02 21 52 35 CC Roger. Understand.

02 21 52 40 CMP And coming up now, the Sea of Fertility are the old friends Messier and Pickering that I looked about so much on earth.

02 21 52 49 CC Roger.

02 21 52 50 CMP And I can see the rays coming out of blaze Pickering. We're coming up now near our P-1 initial site which I'm going to try and see. Be advised the round window, the hatch window, is completely iced over; we can't use it; Bill and I are sharing the rendezvous window.

02 21 53 15 CC Apollo 8, Houston. Roger. Got any more information on those rays? Over.

02 21 53 24 CMP Roger. The rays out of Pickering are quite faint from here; there are two different groups going to the left. They don't appear to have any depth to them at all, just rays coming out.

02 21 53 42 CC Roger.

02 21 53 45 CMP They look like just changes in the color of the mare.

02 21 54 08 CC Bill, if you can tear yourself away from that window, we'd like you to turn off the secondary evaporator. Over.

02 21 54 16	LMP	Roger. Going OFF.
02 21 54 45	CC	Apollo 8, this is Houston. You can leave that secondary pump on for just a few minutes. Over.
02 21 54 53	CMP	Stand by.
02 21 54 54	LMP	Roger.
02 21 55 28	CMP	Okay. Over to my right are the Pyrenees Mountains coming up, and we're just about over Messier and Pickering right now. Our first initial point is easily seen from our altitude. We're getting quite a bit of contrast as we appear - as we approach the terminator. The view appears to be good, no reflection of the sun back to our eyes; it appears that visibility at this particular spot is excellent. It's very easy to pick out our first initial point; and over this mountain chain, we can see the second initial point, the Triangular Mountain.
02 21 56 33	LMP	And we're coming upon the craters Columbo and Gutenberg. Very good detail visible. We can see the long parallel faults or Grabens, and they run through the Mare material right into the highland material.
02 21 57 41	CMP	We're directly over our first initial point now for P-1. It's almost impossible to miss, very easy to pick out, and we look right over into the second initial point.
02 21 57 56	CC	Roger, Jim.

02 21 58 04	CMP	I can see very clearly the five crater star formation which we had on our lunar chart --
02 21 58 14	CC	Roger.
02 21 58 18	CMP	-- And right now, I'm trying to pick out visually P-1.
02 21 58 28	CC	Roger, Jim. Bill, you can turn off the secondary EVAP pump now.
02 21 58 40	CDR	Houston, this is Apollo 8.
02 21 58 43	CC	Apollo 8, Houston. Go.
02 21 58 47	CDR	Roger. How about giving us a system status, please?
02 21 58 51	CC	Roger.
02 21 59 19	CMP	Okay. I've got P-1 in sight now, Houston.
02 21 59 30	CC	Roger, Jim.
02 21 59 32	CMP	It's very easy to spot. You can see the entire rims of the craters from here with, of course, the white crescent on the far side where the sun is shining on it. The shadows are quite lengthy now. Maskelyne B (Marsh of Sleep) has quite a few shadows off of it, but it can be recognized. Just west of the Maskelyne B, we start going to the terminator. The terminator is actually quite sharp over the Pyrenees, and it's - I can't see anything in earthshine at this present time. Bill says that he can see things out the side window when he's not looking down on the sunshine on the moon.

02 22 00 50	CC	Apollo 8, this is Houston. All systems are GO. We're evaluating the strip charts on your SPS burn, and we'll give you a readout on that shortly. Over.
02 22 01 03	CDR	Roger. Thank you. It seemed smooth. Do you need high bit rate any more?
02 22 01 15	CC	Roger. We'd like high bit rate. We have dumped your DSE, and we'd like to stick with high bit rate for a while.
02 22 01 26	CDR	Roger.
02 22 01 45	CMP	Well, we're just about over Maskelyne B (Marsh of Sleep) now, and our target is just directly below us.
02 22 02 32	CC	Apollo 8, this is Houston. If you want the recorder now, it's yours.
02 22 02 41	LMP	Roger. Thank you.
02 22 03 17	CC	Apollo 8, Houston. MSFN tracking is comparing very well with your onboard NAV.
02 22 03 26	CDR	Roger.
02 22 03 31	CDR	Houston, for your information, we lost radio contact at the exact second you predicted.
02 22 03 40	CC	Roger. We concur.
02 22 03 47	CDR	Are you sure you didn't turn off the transmitters at that time? (Laughter in viewing room)
02 22 03 52	CC	Honest Injun, we didn't.

02 22 04 00	CDR	While these other guys are looking at the moon, I want to make sure we have a good SPS. How about giving me that report when you can?
02 22 04 06	CC	Sure will, Frank.
02 22 04 14	CDR	We want a GO for every REV please; otherwise, we'll burn in TEI 1 at your direction.
02 22 04 21	CC	Roger. I understand.
02 22 07 22	CC	Apollo 8, this is Houston. Are you eating?
02 22 07 28	CDR	Say again.
02 22 07 39	CC	Apollo 8, this is Houston. Are you eating dinner?
02 22 07 45	CDR	Negative. We'll have breakfast in a little while here.
02 22 07 49	CC	Roger.
02 22 08 00	CC	Apollo 8, this is Houston. When you go into the dark in about 7 or 8 minutes, I have some words for you on the filters for the wide-angle lens, for your TV camera. Over.
02 22 08 19	CDR	We are in the dark now.
02 22 08 23	CC	Roger. Let me know when you are ready to copy.
02 22 08 36	CC	Apollo 8, Houston. Any words on earthshine? Over.
02 22 09 13	LMP	Earthshine is about as expected, Houston. Not as much detail, of course, as in the sunlight, but you can see the large craters quite distinctly, and you can see the albedo contacts quite distinctly. And, also, the - there's a good three-dimensional view of the rims of the larger craters.

02 22 09 43	CC	Roger, Bill.
02 22 09 54	LMP	I think our high-speed film will be able to pick some of this stuff up quite well.
02 22 09 58	CC	Roger.
02 22 12 44	LMP	Go ahead with your information on the filter, Houston.
02 22 12 47	CC	Apollo 8, Houston. Roger. We recommend you use a wide-angle lens on this particular TV run. You can use a telephoto lens with the same setup as yesterday's TV show. However, we recommend a wide-angle lens. Step number 1, tape the single red filter to the red filter on the red/blue filter holder; do it so that the filter slide still functions. Over.
02 22 13 38	LMP	Go ahead.
02 22 13 40	CC	Roger. Step number 2, attach the filter holder to the lens with the tape on the top and bottom; do this with the slide forward. Over.
02 22 14 04	CDR	Go ahead.
02 22 14 05	CC	Roger. Then at the end of your second REV TV pass, or on request from here, we would like you to remove that red filter from the holder and transmit briefly with it that way, then slide it over the blue side for your final transmission. Over.
02 22 14 27	CDR	We got you.
02 22 14 28	CC	Okay, Frank.

02 22 15 35	CDR	Houston, Apollo 8. Standing by to record TEI 1 and TEI 2.
02 22 15 40	CC	Apollo 8, this is Houston. Your TEI 1 and TEI 2 PAD's you received last pass are still good. Using these PAD's, your next midcourse will be less than 20 feet per second. Over.
02 22 15 56	CDR	Roger. Understand.
02 22 16 14	CC	Apollo 8, Houston. We have all the SPS experts looking at your data now. The preliminary look is very good, and we will give you some final words later.
02 22 16 28	CDR	Roger. We could feel the chug when we threw in BANK B, not a chug, but we could feel additional thrust.
02 22 16 37	CC	Roger. Copy.
02 22 16 44	LMP	Houston, be advised on this red/blue filter technique on the TV. You cannot slide the two filters out of the way with them taped onto the TV camera; so I suggest we do red, blue, and then take them off.
02 22 17 06	CC	Roger. We concur, but make sure the little red filter is taped over the big one. Over.
02 22 17 20	LMP	Alright, you don't want the red fil - you want the blue by itself. Is that correct?
02 22 17 25	CC	That's affirmative, Bill.
02 22 17 33	CC	Bill, we'd like you to use the double red filter for the first transmission. Over.

02 22 17 43	LMP	Roger. It worked.
02 22 18 38	CC	Apollo 8, Houston.
02 22 18 43	LMP	Go ahead, Houston. Apollo 8.
02 22 18 45	CC	Apollo 8, this is Houston. If you should decide that you want to roll heads up on REV 2, one thing to remember, be sure you yaw 45 degrees right in order to maintain your high-gain antenna COMM. Over.
02 22 19 01	CDR	We will not do that; we're going to stick with the flight plan, and make the best we can here.
02 22 19 06	CC	Roger, Frank.
02 22 19 12	CDR	As usual, in the real world, the flight plan looks a lot fuller than it did in Florida.
02 22 19 18	CC	Roger. Understand.
02 22 27 19	CC	Apollo 8, Houston. We need an O_2 purge now.
02 22 27 27	LMP	Roger. And we're standing by for a map update.
02 22 27 31	CC	Roger.
02 22 27 43	CMP	Houston, Apollo 8. Just for your information, after we completed P52, I acquired the earth in the sextant. Quite a sight from here.
02 22 27 57	CC	Roger. Bet it is.
02 22 28 11	CDR	How are the systems experts on the SPS coming, Jerry?
02 22 28 16	CC	They are still working, Frank; another 5 or 10 minutes.
02 22 28 24	CDR	Roger.

02 22 28 38	CC	Apollo 8, Houston. Your SPS data looks real good. It is just a matter of getting it all in from the site and getting it looked at.
02 22 28 48	CDR	Thank you.
02 22 28 49	CC	So far, everything looks copacetic.
02 22 30 42	CC	Apollo 8, Houston. We would like to take about 5 minutes of high bit rate. Over.
02 22 30 50	CDR	Roger. Five minutes of high bit rate coming on.
02 22 30 52	CC	Roger.
02 22 30 56	CDR	You've got it.
02 22 32 14	CC	Apollo 8, Houston with a map update.
02 22 32 15	CDR	Stand by one.
02 22 32 52	CDR	Go ahead with the map update.
02 22 32 55	CC	Roger, Frank. Map update: REV 1/2, no change; the REV 2/3 follows: 73 04 57, 73 09 37, 73 19 01, 73 48 53, 74 24 23; remarks: Bravo 1 74 16 24. Over.
02 22 33 49	CDR	Roger. Copy.
02 22 33 52	CC	Roger. We show you 23 minutes to LOS.
02 22 33 59	LMP	Roger. Are you going to dump the tape?
02 22 34 41	CC	Apollo 8, this is Houston. You are GO for REV 2; all systems are GO. SPS evaluation is still underway and looking good. Over.
02 22 34 56	CDR	Understand; GO for REV 2. Thank you.
02 22 35 00	CC	Roger, Apollo 8. We're still using the tape recorder. We will dump it in a little bit.
02 22 35 35	CC	Apollo 8, this is Houston. The recorder is yours. You can go to low bit rate.

02 22 35 43	CDR	Thank you.
02 22 37 55	CC	Apollo 8, Houston. Request BIOMED switch center.
02 22 38 04	CDR	Three, two, one -
02 22 38 08	CDR	MARK.
02 22 38 11	CC	Roger. Mark.
02 22 43 50	CC	Apollo 8, Houston. Put your TELEMETRY INPUT switch to LOW. Over.
02 22 43 57	CDR	Roger. GO in LOW.
02 22 44 38	CDR	Houston, Apollo 8. We're in the process of preparing meal 4, day - correction: day 4, meal A.
02 22 44 47	CC	Roger, Frank.
02 22 48 13	LMP	Houston, Apollo 8. Over.
02 22 48 15	CC	Apollo 8, Houston. Go.
02 22 48 20	LMP	Are you going to be able to dump that tape prior to LOS?
02 22 48 30	CC	Roger. Bill, they say they have already dumped the tape, and it's almost totally clean.
02 22 48 42	LMP	What does that mean?
02 22 48 52	CC	That means you have got about 2 minutes of low bit rate on there, but the rest is clean. Over.
02 22 48 59	LMP	The high bit rate of the burn wasn't on there?
02 22 49 03	CC	Negative. We've already dumped and got that.
02 22 49 18	LMP	Okay. Let me know when you're going to dump it next time, Jerry. I understand we are GO now on the DSE. Have you got any voice off of it?
02 22 49 26	CC	That's affirmative. We did.
02 22 49 31	LMP	Okay. Thank you.

02 22 50 10	CC	Apollo 8, Houston. The voice quality on your tape was just fair-to-middling; we were able to monitor your burn and hear most of that pretty well.
02 22 50 27	LMP	Roger. Did you get a report of the photography accomplished, or is that on the tape at present?
02 22 50 36	CC	Negative. We haven't heard that.
02 22 50 42	LMP	Okay. We will put it on the tape now.
02 22 50 46	CC	Roger.
02 22 51 53	CC	Apollo 8, Houston. You are 4 minutes and 40 seconds away from LOS. I would like a reconfirmation on your S-band AUX switch in the DOWN-VOICE BACKUP position. Over.
02 22 52 09	CDR	Negative; it is in the NORMAL voice. We will go DOWN-VOICE BACKUP.
02 22 52 17	CC	Roger. Request you leave it there forever. Over.
02 22 52 22	CDR	Roger. In DOWN-VOICE BACKUP now.
02 22 52 44	CC	Apollo 8, this is Houston. All systems are GO. You're still GO for REV 2. Over.
02 22 52 53	CDR	Thank you.
02 22 55 32	CC	Apollo 8, Houston.
02 22 55 37	CDR	Go ahead, Houston. Apollo 8.
02 22 55 39	CC	Roger. One minute to LOS.
02 22 55 44	CDR	Thank you.
02 22 56 25	CC	Apollo 8, Houston. Ten seconds to LOS. All systems are GO.

END OF TAPE

APOLLO 8 AIR-TO-GROUND VOICE TRANSCRIPTION

(GOSS NET 1)

02 23 21 XX		BEGIN LUNAR REV 2
02 23 39 46	CC	Apollo 8, Houston. Over.
02 23 40 42	CC	Apollo 8, Houston. Over.
02 23 40 52	LMP	Houston, this is Apollo 8 with the TV going. Over.
02 23 41 00	CC	Apollo 8, this is Houston. Reading you loud and clear. We see your TV. It is a little bit - little bit clearer.
02 23 41 15	LMP	Roger. The moon is very bright and not too distinct in this area. I will give you a shot of the horizon.
02 23 41 21	CC	Roger.
02 23 41 25	LMP	How's that look? Is it on the top or your picture?
02 23 41 30	CC	Apollo 8, this is Houston. It's a good picture - the horizon - we can't see many terrain features as yet.
02 23 41 41	LMP	Roger.
02 23 41 48	CC	Apollo 8, Houston. We are beginning to pick up a few craters very dimly; the whole thing is pretty bright.
02 23 41 58	LMP	Roger. There is not much definition up here either out out on the horizon. We are now approaching the craters See and Bassett.
02 23 42 06	CC	Roger.
02 23 42 15	LMP	I'll shift to the rendezvous window.

02 23 42 18	CC	Roger, Bill.
02 23 42 22	CC	Apollo 8, Houston. We want to take the DSE.
02 23 42 28	LMP	Roger. You've got it.
02 23 42 29	CC	Roger. Looks like we've got a real good picture now.
02 23 42 35	LMP	Okay. That's the crater Brand.
02 23 42 37	CC	Roger.
02 23 42 42	LMP	Sorry we missed Carr.
02 23 42 43	CC	Me, too.
02 23 42 54	CC	Apollo 8, this is Houston. We are going to need a cryo fan cycle sometime during this pass.
02 23 43 02	LMP	Roger. Can we wait till sunset?
02 23 43 06	CC	Roger. We can wait.
02 23 43 10	LMP	Okay. I think we are coming up on Miller right now.
02 23 43 53	LMP	There's a very new bright impact crater; should be in the field of view now.
02 23 44 01	CC	Roger, Bill.
02 23 44 05	LMP	You see it in the upper part of your screen.
02 23 44 10	CMP	Say, Bill, how would you describe the color of the moon from here?
02 23 44 14	LMP	The color of the moon looks like a very whitish gray, like dirty beach sand with lots of footprints in it.
02 23 44 23	CMP	Some of these craters look like pickaxes striking concrete leaving a lot of fine haze dust.

02 23 44 38	LMP	There's some interesting features out on the other window. Let me switch windows on you now.
02 23 44 41	CC	Roger, Bill.
02 23 44 48	LMP	You should see the horizon now in the top of your picture.
02 23 44 51	CC	Roger. We have the horizon, Bill.
02 23 45 01	CC	Apollo 8, Houston.
02 23 45 02	LMP	I believe these are the craters now Basset and See.
02 23 45 07	CC	Roger, Bill. If you have the polarizing filter handy, try flipping it in front, would you?
02 23 45 15	LMP	Roger.
02 23 45 18	CMP	Jerry, as a matter of interest, there's a lot of what appears to be very small new craters that have these little white rays radiating from them.
02 23 45 29	CC	Roger, Jim.
02 23 45 50	CC	Roger. We see the filter going over it. Apollo 8, this is Houston. Looks like we have to much light. The polarizing filter doesn't help much. Go ahead and remove it again.
02 23 46 16	LMP	Roger. It's removed.
02 23 46 25	CC	Looks like we just got --
02 23 46 26	LMP	Roger. We're just passing over the crater Borman, and there's Anders out there; Lovell is right south of it.

02 23 46 33	CC	Roger. The TV is breaking up now. Okay. We are back with a good picture. Looks like we just have too much light. Our definition is rather weak.
02 23 46 49	LMP	Roger.
02 23 47 01	LMP	Also, we're fogging up the window here, Houston, among other problems.
02 23 47 06	CC	Roger, Bill. The other window is better than that one.
02 23 47 12	LMP	Okay.
02 23 47 21	CC	Much better picture, Bill; much better.
02 23 47 25	LMP	Alright. The right side of the camera is pointing retrograde. We are now passing abeam of the crater Houston; I will show the camera over there once for the folks in Texas.
02 23 47 47	CC	Roger.
02 23 47 53	LMP	It's a big and sprawly one; it's got those two impact craters, one to the rignt and one to the left.
02 23 48 03	CC	Roger, Bill.
02 23 48 13	LMP	How's your picture?
02 23 48 15	CC	Still about the same, Bill. It's - the terrain's pretty bright. We are not getting much definition at all; definition on this side is much much better.
02 23 48 26	LMP	Okay. I think - Okay. We are leaving the

		window; that gives you an idea how bad our window is.
02 23 48 34	CC	Roger. This picture now is much better; I guess the light levels are decreasing now.
02 23 48 42	LMP	Okay. We are coming up on the crater Collins.
02 23 48 45	CC	Roger. What crater is that just going off.
02 23 48 52	LMP	That's some small impact crater.
02 23 48 56	CC	Roger.
02 23 48 57	LMP	We will call it John Aaron's.
02 23 48 59	CC	Okay.
02 23 49 04	LMP	If he'll keep looking at the systems anyway.
02 23 49 06	CC	He just quit looking.
02 23 49 19	CMP	Jerry, another ID feature: these small impact craters have dark spots in the center where it appears that they buried in it and hit some new material down below and scattered a lot of fine white dust around them.
02 23 49 32	CC	Roger. Understand, Jim.
02 23 49 39	CC	Apollo 8. This is Houston. Looks like we could see Collins now.
02 23 49 48	LMP	Roger. There is Collins for you.
02 23 49 52	CMP	And Collins is right on the edge of Smythe's Sea which we are about to pass over.
02 23 49 57	CC	Roger.
02 23 50 24	CC	Apollo 8. This is --
02 23 50 26	LMP	We are now going across the Smythe Sea. Go ahead.

02 23 50 31	CC	Roger. We just saw a Stellenword go by.
02 23 50 39	LMP	Roger. He was really in a hurry.
02 23 50 45	CC	Roger. Picture is much improved now; getting better all the time.
02 23 50 51	LMP	Roger. The terrain here is, as you can see, not well defined. We are going to start a roll to the left, in order to come across the target area, with the television --
02 23 51 15	CC	Roger.
02 23 51 16	LMP	-- landing site area.
02 23 51 18	CC	Roger, Bill.
02 23 51 38	LMP	How is that crater in - right in the middle look now?
02 23 51 41	CC	Roger. That's a very good one; that must be O'Neal.
02 23 51 49	LMP	Roger.
02 23 52 09	CC	Roger, Bill. We see O'Neal real well, also the smaller crater off to the side of it.
02 23 52 19	LMP	That's Dennis.
02 23 52 21	CC	Roger.
02 23 52 38	CDR	Houston, this is Apollo 8. We are going to terminate our program for this pass and get on with the preparations for LOI 2, if you say we are GO.
02 23 52 49	CC	Apollo 8, this is Houston. Roger.
02 23 52 55	CDR	Okay. Signing off until ninth rev. Apollo 8.

Who's O'Neal?